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FIVE NEW SPECIES OF *EUPARIXIA* BROWN (COLEOPTERA: APHODIIDAE: EUPARIINAE), WITH A REVISED KEY TO SPECIES

Robert D. Gordon and Scott McCleve

(RDG) Systematic Entomology Laboratory, PSI, Agricultural Research Service, U.S. Department of Agriculture, c/o National Museum of Natural History, Smithsonian Institution, Washington, DC 20560-0168, U.S.A. Current address: Northern Plains Entomology, P.O. Box 65, Willow City, ND 58384, U.S.A. (e-mail: rdgordon@utma.com); (SM) 2210 13th Street, Douglas, AZ 85607, U.S.A. (e-mail: asmccleve@theriver.com)

Abstract.—Five previously undescribed species of *Euparixia* Brown, ***E. boliviana*** from Bolivia, ***E. campbelli*** from Costa Rica, ***E. isthmia*** and ***E. panamaensis*** from Panama, and ***E. mexicana*** from Mexico are described and integrated into the existing classification. A revised key to all known species is presented.

Key Words: taxonomy, new species, ant nests

Species of *Euparixia* Brown (1927) are highly modified, very distinctive beetles that have evolved for an existence in ant nests. Woodruff and Cartwright (1967) summarized the known biological information consisting of three documented host associations and several suspected associations. *Euparixia formica* Hinton, *E. bruneri* Chapin, and *E. moseri* Woodruff and Cartwright were collected in nests of leafcutting ants of the genus *Atta* Fabricius. *Euparixia campbelli*, n. sp., was taken from an *Atta* detritus cavity in Guatemala (J. M. Campbell, label data). Most specimens are found at lights; rarely is a species excavated from a host nest.

Discovery of a cryptic species closely similar to *E. duncani* Brown led to an investigation of the *Euparixia* holdings in the National Museum of Natural History, Washington, DC. This comparison of specimens revealed an additional three new species described here and still another undescribed species from Bolivia was discovered by Paul Skelley, Florida State Collection of Arthropods, Gainesville, FL.

Acronyms for collections mentioned in the text are as follows: (ASM) Scott McCleve, Douglas, AZ; (CNC) Canadian National Collection, Ottawa; (FSCA) Florida State Collection of Arthropods, Gainesville, FL; (MHN) Museo de Historia Natural "Noel Kempff Mercado," Santa Cruz, Bolivia; and (USNM) National Museum of Natural History, Smithsonian Institution, Washington, DC.

Systematics

Genus *Euparixia* Brown

Euparixia Brown 1927: 288; Woodruff and Carwright 1967: 6. Type species: *Euparixia duncani* Brown. By monotypy.

Diagnosis.—Eupariini with inflexed clypeal margins; explanate pronotal margins; basally constricted pronotal sides; elytral intervals usually cariniform; epipleurae covering episternum, epimeron and apices of middle coxae; middle coxae widely separated; mesosternum separated from metasternum by transverse carina; middle and posterior tarsi long, slender.

Remarks.—Woodruff and Cartwright

(1967) reviewed the taxonomy of *Euparixia*, described one new species, and redescribed all known species. No subsequent studies have been published and Woodruff and Cartwright should be consulted for a summary of all previously known information concerning *Euparixia*.

Examination of all presently known species revealed a strong gradient of morphological adaptation from comparatively unmodified to highly modified pronota. *Euparixia panamaensis*, n. sp., and *E. costaricensis* Hinton possess almost rectangular pronota with only slight modifications of the lateral margin (Fig. 1). *Euparixia formica* Hinton and *E. isthmia*, n. sp., represent an intermediate stage in pronotal modification (Fig. 3), and the remaining species have highly modified pronota typified by an extreme constriction in the basal half (Figs. 5, 7, 9, 11) (Woodruff and Carwright 1967: 21, fig. 5).

REVISED KEY TO SPECIES OF *EUPARIXIA*

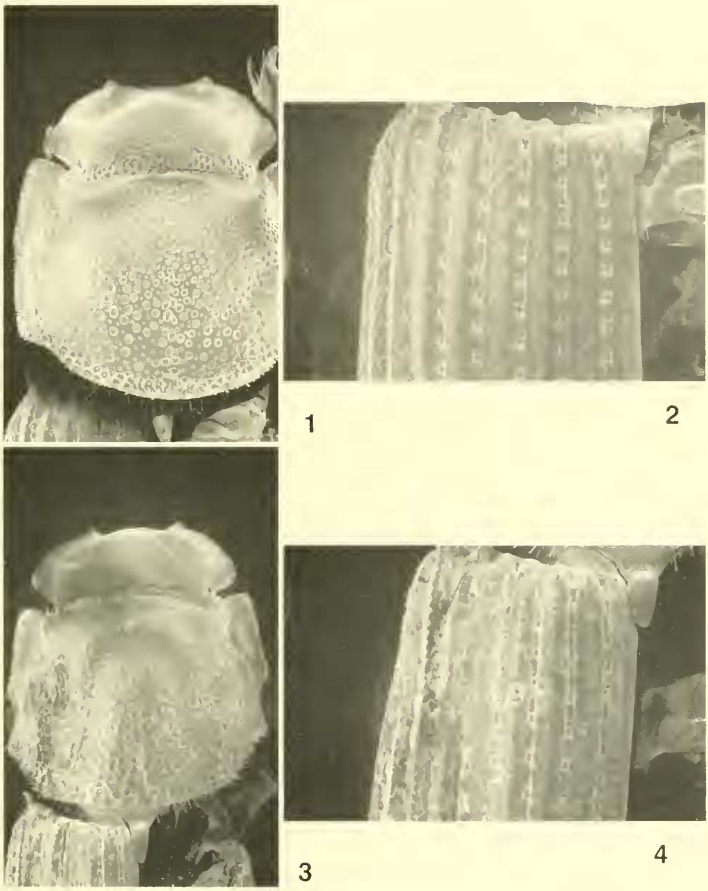
1. Anterior clypeal apex with small tooth on each side (Figs. 1, 3) 2
– Anterior clypeal apex slightly angulate on each side (Figs. 5, 7, 9, 11) 3
2(1). Pronotum nearly rectangular, constricted in basal ⅛, lateral margin gradually, nearly evenly rounded anterior to constriction (Fig. 1) . . . . . *panamaensis*, n. sp.
– Pronotum not rectangular, lateral margin more or less sinuate (Fig. 3) . . *isthmia*, n. sp.
3(1). Elytral intervals moderately convex, not cariniform, except *E. boliviana* with intervals 7–9 weakly carinate (Fig. 10) 4
– Elytral intervals distinctly cariniform (Figs. 6, 8, 12) 5
4(3). Pronotum narrowed only in basal ⅓ . . . . . *costaricensis* Hinton
– Pronotum narrowed in basal ½ (Fig. 9) . . . . . *boliviana*, n. sp.
5(3). Pronotum constricted only in basal ⅓, posterior angles prominent and acute (Figs. 1, 5, 7) 6
– Pronotum constricted in basal ½ or more (Fig. 11), posterior angles obsolete or nearly so (Fig. 11) 8
6(5). Pronotum narrowed only in basal ⅓, posterior angles prominent and acute (Figs. 5, 7) 7
– Pronotum narowed at middle, posterior angles weakly defined, rounded . . . . . *formica* Hinton
7(6). Pronotal disc with deep punctures separated by thin, high "walls" presenting a honeycomb appearance (Fig. 7) . . . *duncani* Brown
– Pronotal disc with shallow punctures separated by flat pronotal surface (Fig. 5) . . . . . *mexicana*, n. sp.
8(5). Basal ⅓ of pronotum with deep punctures narrowly separated by high "walls" presenting a honeycomb appearance (Fig. 11); metasternum densely, coarsely punctured . . . . . *campbelli*, n. sp.
– Basal ⅓ of pronotum with punctures not deep, separated by low ridges or convex pronotal surface; metasternum essentially impunctate 9
9(8). Pronotum with lateral explanation nearly impunctate, lacking tubercles, pronotal surface slightly convex between punctures; (Louisiana and Cuba) . . . . . *moseri* Woodruff and Cartwright
– Pronotum with lateral explanation weakly punctate, with some fine tubercles, pronotal surface with punctures separated by low ridges (Cuba) . . . . . *bruneri* Chapin

Euparixia panamaensis Gordon and McCleve, new species
(Figs. 1, 2)

Description.—Length 4.6 mm, width 2.1 m. Elongate, convex, shiny, dark red.

Head: Clypeus widely emarginate between toothed angles, sides arcuate to feeble genal sulcus. Margin not reflected dorsally at center, ventrally inflexed at center; genal angle obtuse. Surface with moderate, dense, nearly contiguous punctures across occiput; punctures smaller, sparser between eyes, becoming elongated anteriorly, progressively smaller, changing to minute punctures near anterior margin. Frontal suture not evident. Eye not visible in repose. Lateral margin of gena with narrow sulcus from margin to deep pore at anterior edge of eye, sulcus continued above eye, with short, sharp carina at margin adjacent to eye.

Pronotum: Broader than long (1.8 mm × 1.2 mm), moderately convex. Basal margin with single row of large, contiguous punctures; basal ½ of disc with few large, confused punctures anterior to basal row, then scattered, large punctures 1–2 diameters apart with tiny puncture or granule in



Figs. 1–4. Pronota and elytra. 1, *Euparixia panamaensis*, pronotum. 2, *E. panamaensis*, elytra. 3, *E. isthmia*, pronotum. 4, *E. isthmia*, elytra.

bottom of each, large punctures becoming smaller anteriorly. Scattered among large punctures are tiny punctures remaining unchanged to anterior margin where they become indistinguishable from reduced larger punctures. Sides explanate, weakly punctured, dull, with scattered small setae. Base with weak longitudinal groove in basal ½, larger punctures with small punctures in bottom often contiguous in and near groove. Oblique depressions moderately well defined, about 10 punctures long and 2–3 punctures wide. Anterior angles broadly rounded, sides slightly diverging, almost parallel for ⅗ of length of explanation to almost imperceptible angle, then slightly

converging for remaining ⅗ of explanation; posterior angles obtuse, angles wider than elytra across base, basal constriction very short, only ⅕ of pronotum (Fig. 1).

Elytron: Elongate-oval (right elyron missing), widest at apical ⅓; intervals flat with scattered minute granules, each with an extremely minute seta, granules sometimes in single row, sometimes in weak, widely spaced, offset double rows. Striae with punctures moderately deep, small, sides of striae uneven and with indentation behind many punctures on outer side of stria, floor of stria with tiny transverse lip behind each puncture associated with each indentation of outer side of stria; mesal side of each stria nearly straight (Fig. 2). Scutellum with shallow, irregular, rugose, punctate depression at base.

Sternum: Prosternal process broadly arcuate at base, margins raised, shiny, thick at base, carinate laterally, disc depressed in a "V" with apex forward. Middle coxae separated by 1 ½ length of middle trochanter, middle depression clearly defined, depressed anteriorly, with 2 narrow isosceles triangular raised areas, 1 on each side, with base of each triangle near anterior margin of depression and apex pointing posteriorly; microsculpture of depression not evident at 50×. Meso- and metasterna separated by transverse carina with projections extending onto metasternum only, merging with shiny disc of metasternum. Center of metasternum with deep, longitudinal sulcus. Sulcus behind middle coxae deep anteriorly, moderately punctate, shallow, with large, confused punctures posteriorly. Disc of metasternum shiny with minute punctures, sides with few large punctures each with minute punctures in bottom. Depression behind middle coxa deep, sharply defined, shiny, rugulose, punctate in bottom. Side of metasternum laterally and anteriorly with small to moderate punctures.

Abdomen: First sternum with closely spaced, longitudinal carinae forming quadrate cells on posterior margin (fluting). Sterna 2–5 each depressed on anterior margin, depressions with closely spaced, long carinae forming quadrate cells, cells on second sternum about ⅙ length of sternum, ¼ length of sternum on third sternum, more than ½ length of sternum on fourth and fifth sterna at center. Posterior margin of sterna 2–3 with small ½ punctures, larger laterally, giving scalloped effect to margins. Posterior margin of fourth sternum with row of minute, light colored setae. Disc of sterna 2–3 shiny, with scattered, minute, setose punctures, punctures larger laterally. Sternum 4 with disc apparently impunctate at center, punctures evident laterally. Disc of fifth sternum shiny, with small setose punctures. Pygidum with disc somewhat shiny, with short, longitudinal carina at basal center and numerous, scattered, small tubercles on each side. Basal ½ of pygidium with strong longitudinal sulcus at center.

Legs: Anterior tibia tridentate, middle tooth longest, apical tooth bent outward at obtuse, nearly right, angle. Apical spur elongate, narrow, slightly curved. Anterior trochanter prominent, shiny dorsally, dull ventrally, inner margin with few setae, crenulations vaguely evident. One long seta on femur near trochanter. Anterior femoral groove and about ½ of dorsal surface with appressed golden setae; ventral surface completely covered with moderate punctures separated by their own diameter. Middle femoral marginal groove complete from apex to near trochanter; posterior femoral marginal groove evident from apex to less than ½ distance to trochanter. Middle and posterior femora shiny, with minute punctures and associated setae, punctures separated by 1–3 a diameter. Posterior coxa between trochanters shiny with few moderate to large punctures on mesal ½.

Type material.—Holotype ♂: Panama, Canal Zone, Gamboa, 24-V-53 (USNM).

Distribution.—Known only from the type locality.

Material examined.—The holotype male.

Etymology.—The species is named for the country where the type specimen was collected.

Remarks.—The nearly rectangular outline of the pronotum with explanate margins continued almost to the base will serve to separate this species from those known. Other unique features include the large punctures with a tiny puncture in the bottom of each on the pronotum and metasternum, flat elytral carinae with scattered, minute granulations, scutellum with only a shallow, rugose depression at the base, and the unusual mesosternum with two triangular raised areas.

The holotype bears a handwritten label identical to that of two paratypes of *E. isthmia* except dates VI instead of V. Both species were likely collected from the same light trap, and this demonstrates for the first time that two species of *Euparixia* are sympatric. The holotype is missing the right elytron, right hind leg, and all, or parts of all, tarsi.

Euparixia isthmia Gordon and McCleve, new species

(Figs. 3, 4)

Description.—Length 4.4 mm, width 2.0 mm Elongate, convex, dull, dark brown.

Head: Clypeus broadly arcuate between toothed angles, sides arcuate to posterior margin without genal notch, anterior margin not reflected dorsally at center, ventrally feebly recurved at center; gena prominent, right angled. Surface densely, moderately punctate across base, punctures separated by less than a diameter, becoming much smaller and sparser anteriorly and laterally, changing to minute rounded denticles. Posterior margin of gena with narrow, shiny, impunctate sulcus extending almost to anterior pronotal margin, with small, deep pore above eye, and with short, sharp carina adjacent to eye. Frontal suture lacking.

Pronotum: Broader than long (2.0 mm × 1.2 mm), moderately convex (Fig. 3). Basal margin with single row of large, deep, contiguous punctures, punctures anterior to row confusedly placed and of various sizes, some contiguous or overlapping, others separated by a diameter, most smaller punctures bearing a short, light colored seta near anterior margin. Pronotum in basal ½ with deep, longitudinal, punctate groove 2 large punctures wide, and with deep, broad, oblique depression on each side of disc, depressions irregularly punctate with large punctures. Surface anterior to oblique depressions finely, regularly punctate, punctures becoming minute near anterior margin. Explanate sides dull, opaque, impunctate or with weak punctures or denticles and scattered short setae. Anterior angles shallowly, broadly rounded, forming nearly right angle with lateral margin. Explanate margins with angle at apical ⅓, constricted posterior to angle, then 2nd angle present at median ⅓ before basal constriction. Basal constriction short, basal margin about as wide as elytra at base (Fig. 3).

Elytron: Elongate oval, widest at apical ⅓, intervals on disc flat or only weakly carinate (Fig. 4), with single row of minute granules separated by about a diameter, each granule bearing a minute seta; intervals more carinate laterally, especially 9th interval, and apically. Each stria with row of indistinctly sculptured, elongate, shallow punctures separated by less than length of puncture. Scutellum narrow, shiny, without basal depression.

Sternum: Prosternal process broadly rounded at base, margins raised, slightly shiny, disc raised, irregularly, rugosely sculptured, with alutaceous sulcus on each side between disc and lateral margins. Mesosternum with coxae separated basally by 1½ length of middle trochanter; median depressed area clearly margined, depression deep, anterior ⅔ with sharp, central, longitudinal carina flanked on each side by deep groove, then series of 5–6 more or less parallel, anastamozing carinae; carinae and grooves between alutaceous, basal portion of mesosternum slightly shiny, with microreticulation barely evident at 50×. Meso- and metasterna separated by indistinct, transverse carina, longitudinal extension of carina onto meso- and metasterna lacking. Metasternum with center of disc depressed,

with deep, coarse sulcus appearing to have tiny, longitudinal carina at bottom for nearly entire length; carina behind middle coxae strong, adjacent sulcus indistinct, weekly punctate; remainder of disc moderately shiny, minutely, moderately punctate, each puncture with minute, broad, whitish seta; depressed area in front of posterior coxa dull, deep; sides feebly shining, moderately, indistinctly punctate.

Abdomen: Basal sternum depressed along posterior margin, depression with longitudinal carinae forming rectangular cells. Second sternum with single row of short, weak, parallel, longitudinal carinae in anterior $1/10$, carinae not forming quadrate punctures; punctures on posterior margin enlarged, with posterior ½ of each effaced, forming scalloped margin; third sternum with single row of short, sharply distinct carinae about $1/6$ length of sternum, not forming quadrate cells along anterior margin, posterior margin with single row of enlarged ½ punctures forming scalloped margin; fourth sternum with anterior ½ depressed, depression with longitudinal carinae, forming quadrate cells, posterior margin weakly crenulate; fifth sternum with anterior ½ depressed, depression with closely spaced, longitudinal carinae forming cells about 4 times longer than wide; posterior ½ of sternum shiny; disc of sterna 2–5 weakly punctate, punctures small, moderately spaced, with tiny setae more evident than punctures. Pygidum with narrow, dull, apical margin; disc depressed, dull, with fine median carina at basal center and several small tubercles laterally. Basal ½ of pygidium alutaceous, with weak, longitudinal sulcus.

Legs: Anterior tibia tridentate, middle tooth longer than others, apical tooth obtuse, bent outward at less than right angle; apical spur slender, curved. Anterior trochanter large, inner margin with 3–4 setae in apparent punctures causing coarse, weak crenulation of margin, shiny and impunctate dorsally, ventrally dull, rugose, punctate. Anterior femur with single seta on each side near trochanter. Anterior femoral groove and about ⅓ of dorsal surface of femur covered with fine, sparse setae; posterior surface dull, with moderate punctures separated by about a diameter or less, some punctures indistinct. Middle femur with marginal groove strongly impressed from trochanter to apex. Posterior femur with marginal groove extending length of femur, except weak or absent near trochanter. Posterior coxa between trochanters alutaceous on mesal ½, shiny on lateral ½, without apparent punctures or setae.

Variation.—Length of male paratype 4.9 mm, and female paratype 4.5 mm. Both paratypes have either no setae or only 1 seta on anterior femur near trochanter. The female is lacking both elytra, one anterior leg, and all, or parts of all, tarsi except for one complete anterior tarsus.

Type material.—Holotype ♂: Panama, Canal Zone, Ft. Glick, Bldg. 708, 17 May '65, light (USNM). Paratypes, 2; 1 ♂, 1 ♀, Panama, Canal Zone, Gamboa, 24-VI-53, (USNM).

Distribution.—Known only from the Canal Zone, Panama.

Material examined.—The three type specimens.

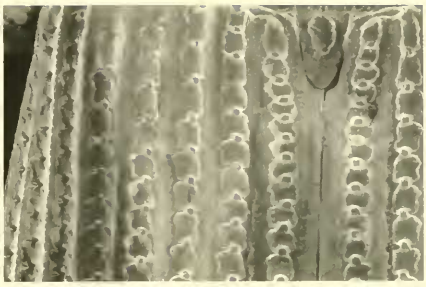
Etymology.—The specific epithet is from the Latin *isthmus*, meaning neck or narrow passage, and refers to the Isthmus of Panama.

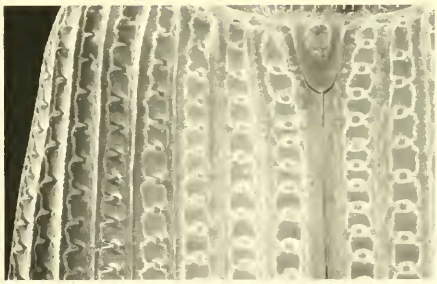
Remarks.—This species has the intermediate type of pronotum (see generic discussion), a character shared only with *E. formica* Hinton. The mesosternal sculpture appears to be unique in the genus. The longitiudinal carinae are quite striking, somewhat like a portion of a woodcut as used in printing illustrations with the carinae and grooves seemingly carved into the surface. The lack of an anterior scutellar depression is also unusual.

Euparixia mexicana Gordon and McCleve, new species

(Figs. 5, 6)

Description.—Length 5.4 mm, width 2.4 mm Elongate, convex, feebly shiny, dark reddish brown.





Figs. 5–8. Pronota and elytra. 5, *Euparixia mexicana*, pronotum. 6, *E. mexicana*, elytra. 7, *E. duncani*, pronotum. 8, *E. duncani*, elytra.

Head: Clypeus widely truncate between weak angles, sides feebly arcuate to very slight genal notch, margin dorsally, feebly recurved at center and ventrally inflexed at center; genae prominent, right angled. Surface finely and densely punctate between eyes, punctures separated by a diameter or less, finer at sides and anteriorly, changing to minute granules in anterior ⅓, granules continuing to anterior margin. Frontal suture not visible. Eyes not visible when head in repose. Lateral margin of gena with a weak, punctate sulcus beginning near anterior margin and deepened gradually near eye into a deep pore, and with short carina at margin of gena adjacent to eye.

Pronotum: Broader than long (2.1 mm × 1.6 mm, very convex (Fig. 5). Basal mar-

gin with single distinct row of contiguous large punctures. Basal ½ of disc with large punctures a diameter or less apart, becoming abruptly smaller and sparser anteriorly; much smaller, shallow, punctures present between large punctures of basal ½ and continuing anteriorly, becoming denser as larger punctures disappear. Explanate sides impunctate or with indistinct small punctures. Oblique depressions on pronotum very weak, filled with about 20 large punctures in about 2 rows. Anterior angles broadly rounded. Posterior angles distinct, right angled. Explanate margins with an angle at anterior ⅓, then narrowed slightly to 2nd prominent angle at median ⅓, then narrowed sharply to short basal constriction. Pronotum at base much narrower than elytra at base.

Elytron: Elongate oval, widest at apical ⅓; intervals convex, weakly carinate (Fig. 6), each interval bears row of minute granules barely visible at 50×, separated by their own diameter. All 10 striae with series of deep punctures; superimposed above deep punctures is a chain of larger and shallower punctures (the stria itself) formed by toothlike points projecting from each side of each raised interval; points extend toward each other from each adjacent interval toward or partially over each deeper puncture, giving complex appearance. Scutellum narrow, with sharply defined depression at base.

Sternum: Prosternal process broadly rounded, almost truncate posteriorly, disc strongly margined at base, less so laterally. Mesosternum with coxae separated by 1 ½ length of middle trochanter; median depression clearly margined, depression in basal ⅔ somewhat shiny, microsculpture evident at 50×, anterior ⅓ of depression slightly raised nearly to level of margin and arcuately delimited behind on a line beginning opposite anterior ⅓ of middle coxa, curving anteriorly toward prosternal process and continued to middle of opposite coxa; raised anterior ⅓ of depression irregularly shiny, rugose, punctate. Meso- and metasterna divided by transverse carina with fine carina projecting both anteriorly into mesosternal depression and posteriorly onto metasternum. Latter carina gives way to long, coarse, deep median sulcus. Carina bordering posterior portion of middle coxa large, separated from disc of metasternum by deep, variably punctate sulcus, remainder of disc with fine to moderate punctures except for shiny impunctate area between posterior end of median sulcus and hind coxae; depressed area anterior to hind coxa deep, sharply bordered, confusedly rugulose, narrowly smooth and shiny adjacent to posterior coxa; anterior and lateral margins between middle coxa and epipleuron with punctures larger than on disc, surface shiny between punctures.

Abdomen: First sternum with irregularly spaced, longitudinal carinae on posterior margin forming quadrate cells open behind. Sterna 2–5 each depressed on anterior margin, depression with irregularly spaced, longitudinal carinae, depression longer on each successive sternum. Posterior ⅔ of sterna 2–3 with coarse punctures, larger laterally, followed by single row of larger punctures open behind, giving a scalloped effect to posterior margin. Sternum 4 with smaller punctures and with series of extremely minute, light colored setae at posterior margin. Fifth sternum impunctate at center of posterior margin. Pygidium with raised, shiny, apical margin thickened at middle; disc depressed, shiny, with short median carina at basal center and several small tubercles on each side near basal margin; Basal ½ of pygidium above ridge strongly alutaceous, with a strong, longitudinal sulcus.

Legs: Anterior tibia tridentate; apical tooth bent outward at nearly right angle. Apical spur elongate, narrow, slightly curved. Anterior trochanter prominent, shiny dorsally, rugose, punctate ventrally, inner margin with about 12 extremely short, light colored setae giving margin minute crenulations. Both anterior femora with 3 setae near trochanter. Anterior femoral groove and about ⅓ of dorsal surface cov-

ered with short golden setae. Middle femoral marginal groove complete from apex to apex of trochanter. Posterior femoral marginal groove extending from apex to apex of trochanter. Posterior femoral marginal groove extended from apex less than ½ distance to trochanter, feebly impressed. Middle and posterior femora with moderate punctures, each with short, conspicuous seta. Posterior coxa between trochanters punctate, punctures moderate, distinct, minutely setose.

Variation.—Length 4.8 to 5.7 mm. The single female from Tomatlan (4.9 mm) is essentially the same size as the male with same data (4.8 mm). Some specimens show a vague, short, longitudinal groove at the pronotal base. Some specimens bear minute setae on the pronotum, elytral intervals, and metasternum. One Ajijic specimen has the posterior angle of the pronotal explanation more developed than any other; the same specimen has the basal constriction of the pronotum longer than the others, although it also varies in length among the others. The number of setae near the trochanter varies considerably among specimens as follows, with the first number of each pair representing the left femur: 2–3, 5–2, 3–2, 3–4, 3–2, 3–3.

Type material.—Holotype ♂: Mexico, Sonora, 17 km sw Moctezuma, vii-21, 22–80, 944 m, at light, S. McCleve, P. Jump (FSCA). Paratypes, 6, 1 ♂, Mexico, JAL(Jalisco), 3 mi. N. Barra de Navidad, Bahia de Coastecomate, 17 August, 1964, WLNutting, lt. trap, thorn forest clearing; 2 ♂, Mexico, JAL., Ajijic, 21 June, 1964, 16 July, 1964, 5140′, WLNutting, UV. lt. trap; 1 ♂, 1 ♀, JA(Jalisco), hwy 200, 15 mi S Tomatlan, vii-11-84, UVL, S. McCleve, P. Jump; 1 ♂, Mexico, Sin(Sinaloa), Venodio(Venadillo?), C.17, Kusche '18, donor BP Clark (ASM, USNM).

Distribution.—Mexico (northern Sonora, Sinaloa, and Jalisco).

Material examined.—The seven type specimens.

Etymology.—The species name refers to the country where all type specimens were taken.

Remarks.—This species is most similar to *E. duncani* Brown. The pronotal outlines are very similar, but *E. mexicana* has narrower lateral explanations (Figs. 5, 7). The elytral intervals of *E. mexicana* are less carinate, bearing only a row of separate, minute granules, whereas in *E. duncani* the granules are crowded together onto the carinae (Figs. 6, 8). Both meso- and metasterna are sculpted differently in each species. Because of the similarity in appearance, this species has been misidentified as *E. duncani* Brown. The two Ajijic paratypes and the single Venodio, Jalisco, paratype were listed among specimens of *E. duncani* identified by Woodruff and Cartwright (1967). It is likely that other specimens of *E. mexicana* are confused with *E. duncani* in other collections. To our knowledge, no specimens of *E. duncani* have been collected in Mexico, although it almost certainly occurs at least in northern Sonora, having been collected at Douglas, Arizona, on the Mexican border. The host of *E. mexicana* is likely *Atta mexicana* (Smith) (which is common at the type locality in Sonora); therefore it also could occur in Arizona where *A. mexicana* exists in a small section of Organ Pipe National Monument.

Euparixia boliviana Gordon and McCleve, new species

(Figs. 9, 10)

Description.—Length 4.7 mm, width 2.1 mm. Elongate, convex, feebly shiny, dark reddish brown.

Head: Clypeus distinctly emarginate with angles rounded, sides straight to very slight genal notch, apical margin dorsally, feebly recurved at center and ventrally inflexed at center; genae feebly produced, rounded. Surface finely and densely punctate between eyes, punctures separated by a diameter or less, finer at sides and anteriorly, changing to minute granules in anterior ⅓, granules continuing to anterior mar-

9

10

11

12

Figs. 9–12. Pronota and elytra. 9, *Euparixia boliviana*, pronotum. 10, *E. boliviana*, elytra. 11, *E. campbelli*, pronotum. 12, *E. campbelli*, elytra.

gin. Frontal suture barely perceptible. Eyes not visible when head in repose. Lateral margin of gena with a weak, punctate sulcus beginning near anterior margin and deepened gradually near eye into a deep pore, and with short carina at margin of gena adjacent to eye.

Pronotum: Broader than long (1.8 × 1.2 mm), very convex (Fig. 9). Basal margin with single distinct row of contiguous large

punctures. Basal ½ of disc with large, nearly contiguous punctures becoming gradually smaller and sparser anteriorly, small punctures absent. Explanate sides impunctate. Oblique depressions on pronotum distinct, filled with about 20 large punctures in about 2 rows. Anterior angle abruptly broadly rounded. Posterior angles obsolete. Explanate margins with angle at anterior ⅓, then strongly narrowed to base. Pronotum at base much narrower than elytral base.

Elytron: Elongate oval, widest at apical ⅓; intervals convex, not carinate except intervals 7–9 weakly carinate (Fig. 10), each interval with row of minute granules barely visible at 50×, separated by their own diameter. All 10 striae with series of deep punctures separated by less than diameter of a puncture. Scutellum narrow, with sharply defined depression at base.

Sternum: Prosternal process broadly rounded posteriorly, disc strongly margined at base, less so laterally. Mesosternum with coxae separated by 1 ½ length of middle trochanter; median depression clearly margined, with strong median carina, depression in basal ⅔ somewhat shiny, microsculpture evident at 50×, anterior ⅓ of depression slightly raised nearly to level of margin and arcuately delimited behind on a line beginning opposite anterior ⅓ of middle coxa, curving anteriorly toward prosternal process and continued to middle of opposite coxa; raised anterior ⅓ of depression irregularly shiny, rugose, punctate. Meso- and metasterna divided by transverse carina, carina smooth, without fine carinae. Latter carina gives way to long, coarse, deep median sulcus. Carina bordering posterior portion of middle coxae large, separated from disc of metasternum by deep, variably punctate sulcus, remainder of disc with fine to moderate punctures except for shiny impunctate area between posterior end of median sulcus and posterior coxae; depressed area anterior to posterior coxa deep, sharply bordered, confusedly rugulose, narrowly smooth and shiny adjacent to middle coxa; anterior and lateral margins between mesocoxa and epipleuron with punctures fine, surface shiny between punctures.

Abdomen: First sternum with irregularly spaced, longitudinal carinae on posterior margin forming very small quadrate cells open behind. Sterna 2–3 not depressed on anterior margin, with narrow row of fine, dense, nearly contiguous cells; sterna 4–5 with large, elongate, narrow cells on anterior margin separated by narrow, longitudinal carinae. Posterior margin of sterna 4 with row of small, irregular tubercles. Fifth sternum impunctate medially. Pygidium with raised, shiny, apical margin thickened at middle; disc depressed, shiny, with short median carina at basal center and several small tubercles on each side near basal margin; basal ½ of pygidium above ridge strongly alutaceous, with a strong, longitudinal sulcus.

Legs: Anterior tibia tridentate; apical tooth evenly curved outward. Apical spur elongate, narrow, slightly curved. Anterior trochanter prominent, shiny dorsally, rugose, punctate ventrally. Both anterior femora with 1 seta near trochanter. Anterior femoral groove and about ⅓ of dorsal surface covered with short golden setae. Middle femoral marginal groove complete from apex to apex of trochanter. Posterior femoral marginal groove extending from apex to apex of trochanter. Middle and posterior femora with small punctures throughout, punctures separated by less than to 3 times diameter of a puncture, each puncture with very short, stout seta. Posterior coxa between trochanters smooth with weak, sparse punctures.

Type material.—Holotype ♂: Bolivia, Santa Cruz, 3.7 km SSE. Buena Vista, Hotel Flora & Fauna, 430 m, 5–15-XI-2001, M.C. Thomas and B.K. Dozier, tropical transition forest, BLT. (MHN).

Distribution.—Known only from the type locality.

Material examined.—The holotype.

Etymology.—The species name refers to the country where the holotype specimen was collected.

Remarks.—This species is in the group with basally constricted pronota abruptly narrowed in the basal half, a group typified by *E. campbelli*. The noncarinate discal intervals are similar only to those of *E. costaricensis* which has a broad pronotum constricted only in the basal third.

Euparixia campbelli Gordon and McCleve, new species

(Figs. 11, 12)

Description.—Length 5.2 mm, width 2.2 mm. Elongate, convex, dull, dark brown.

Head: Clypeus widely truncate between weak angles, sides obliquely truncate to weak genal notch, anterior margin barely reflected dorsally at center, inflexed ventrally at middle. Surface densely, deeply, coarsely and regularly punctate between eyes, some punctures elongate, punctures sharing margins in reticulate pattern becoming smaller in transverse, complete band between anterior margins of eyes, then larger again until gradually becoming smaller, giving way to minute granulations anteriorly on clypeus. Each puncture with short, minute, erect golden seta barely visible at 50×. Deep sulcus present along lateral margin of gena with deep pore at anterior inner corner of eye, continued weakly above eye with short, sharp carina adjacent to eye.

Pronotum: Broader than long (2.0 × 1.4 mm), very strongly convex. Almost entire dorsal surface covered with deep, coarse, regular, adjacent punctures much like a honeycomb, punctures becoming smaller and shallower near anterior margin, continuing to anterior margin. Minute, short, semierect, posteriorly projecting, golden seta present on anterior rim of each puncture. Punctures on lateral explanations becoming shallower but larger, then indistinct, giving way to irregular, minute granulations. Oblique depressions not evident except as a group of about 10 slightly shallower punctures where depressions should be; longitudinal groove at base lacking. Anterior angles narrowly rounded, acute. Explanate margins short, terminated with sharp right angle at anterior ⅓, followed by long basal constriction (Fig. 11); smooth, shiny sulcus present along lateral margin of basal constriction, merging with reticulate punctures near base.

Elytron: Elongate oval, widest at apical ⅓, intervals strongly carinate, at 50× showing single row of minute adjacent granules each with extremely minute seta visible in profile at 50×; sutural interval with prominent, distinct, single row of discrete punctures visible at 25×. Striae deep, punctures deep, small, sharply defined, a small, acute projection from carina on each side approaching each puncture; strial punctures separated by 1 to 2 their own diameter, area between shiny (Fig. 12). Scutellum narrow, elongate, with deep, porelike depression at base.

Sternum: Prosternal process broadly arcuate at base, all margins raised and shiny, disc depressed. Mesosternum with coxae separated basally by more than length of middle trochanter; median depressed area smooth, shiny, with microreticulation evident at 50×, becoming irregular, dull near prosternum. Meso- and metasterna separated by fine, transverse carina having short, longitudinal extensions; carina on metasternum succeeded by long, coarse, broad, deep sulcus irregularly and minutely rugose at bottom. Sulcus bordering middle coxa broad, deep, punctate at bottom. Remainder of disc shiny, covered with moderate to large punctures, most punctures except largest bearing 1 minute, light colored seta each; sides with punctures larger, less well defined than on disc; depressed area in front of posterior coxa weakly shiny, with shallow punctures.

Abdomen: First sternum with widely spaced, short carinae in posterior ½, not forming distinct quadrate cells. Sterna 2–5 depressed on anterior ½, depression with widely, irregularly spaced longitudinal ridges, depressed area more extensive on each subsequent sternum. Disc of sterna 2–3 with variably sized, moderate to large punctures; posterior margin of same sterna with

moderate partial punctures giving margin scalloped effect.

Legs: Anterior tibia tridentate, apical tooth slender, longer than other 2, bent outward at right angle to tibia; apical spur elongate, slender; anterior trochanter large, prominent, shiny, impunctate dorsally, concave, rugose ventrally; inner margin with numerous minute setae, not clearly crenulate. Anterior femur with 3 setae near trochanter on left side, 2 on right side. Anterior femoral groove and about ⅓ dorsal surface of femur covered with fine, semiappressed golden setae; posterior surface of femur dull, covered with large, overlapping punctures. Middle femoral marginal groove complete from apex to near trochanter; posterior femur with marginal groove extended only ½ distance from apex to trochanter, strongly incised.

Variation.—The female paratype is 4.1 mm long and has 3 setae on each anterior femur near trochanter.

Type material.—Holotype ♂: Guatemala, Finca San Rafael Olimpo, Cuyatenango, Such.(Suchitepequez), I.21.1966, J. M. Campbell, ex. large detritus cavity of *Atta* sp., 6–8 ft. deep (CNC). Paratype, 1 ♀, same data as holotype (CNC).

Distribution.—Known only from the type locality.

Material examined.—The holotype and one paratype.

Etymology.—This species is named for the collector of the type series, J. M. Campbell, in recognition of his many contributions to the study of Coleoptera.

Remarks.—The shape of the pronotum, with only a single strong angle on the explanate margin, is similar to *Euparixia bruneri* and *E. moseri.* However *E. campbelli* lacks any indication of a weak angle behind the prominent angle of the lateral margin. The pronotal punctation of *E. campbelli* is also unique in being of uniform size and completely covering all but the explanate margins in a crowded honeycomb pattern.

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